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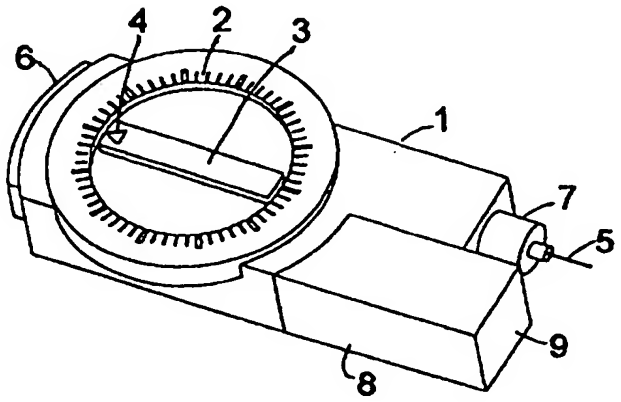
(54) Title: SYRINGE

(57) Abstract

A syringe comprising a housing (1), a dose setting mechanism in the housing, an injection button (6), and a needle receiving member. By this syringe doses of a medicine can be set by the dose setting mechanism and by operating the injection button (6) the set dose can be pressed out from an ampoule accommodated in the housing (1) through a needle (5) mounted on the needle receiving member. The housing further comprises an accessible compartment covered by a lid (10) or a cap (8) in which compartment accessories (11) are stored.



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Syringe

The invention relates to syringes of the kind comprising a housing, a dose setting mechanism in the housing, an injection button, and a needle receiving member, by which syringe doses of a medicine can be set by the dose setting mechanism and by operating the injection button can be pressed out through a needle mounted on the needle receiving member from an ampoule accommodated in the housing.

Such syringes are mainly developed to be used by patients, mainly diabetics, who have to frequently inject themselves with individually set doses of insulin. The syringes are often given a shape like a fountain pen so it may be carried by the patient all through the day and is always ready for an injection. The ampoule may contain medicine enough for several days, but the used needle must be removed after an injection and a new needle mounted before the next injection. This opens the need for extra needles which the patient further must bring with him. Also other kinds of equipment may be necessary so as strips by which the blood glucose concentration may be estimated and pills if the diabetic suffers from the type II diabetes which is treated partly by pills and partly by insulin injections. Consequently the syringe is mainly delivered in a small case which accommodates the syringe, a number of needles, possibly a ampoule with medicine etc. However, this already makes the patient less free than it was intended when the pen was developed as an device integrating all the most necessary parts. Especially the need for spare needles have to be met.

From EP 697 222 it is known to fix a tube containing a number of needles to a pen by a clip having oppositely directed C-shaped portions. This solution only transforms the inconvenience of having two parts to carry into the inconvenience of having a bulky thing to wear.

It is an object of the invention to provide a syringe by which this inconveniences are avoided.

This is obtained by a syringe of the kind mentioned in the opening of this specification, which syringe according to the invention is characterised in that the housing comprises an accessible compartment .

The compartment may according to the invention has a size enabling it to accommodate at least one needle stored in a needle magazine.

The compartment may according to the invention be a cavity in the housing covered by a lid, or it may be an inner space in a cap which is mounted on the housing or in a drawer which is slides into the housing.

In the following the invention is further described with references to the drawing wherein,

Figure 1 shows a syringe with a compartment according to the invention, the compartment being closed by a cap,

Figure 2 shows the syringe in figure 1 with the cap off, and

Figure 3 shows another embodiment of a syringe with a compartment covered by a lid.

Figure 1 shows a preferred syringe having a compartment according to the invention. The syringe is of the type which due to the use of a flexible piston rod is shorter and broader than a conventional pen shaped syringe. Such syringes has a format lying between the size of a lighter and a pack of cigarettes and are consequently easy to carry in a pocket. Pen shaped syringes has through the time lost their slim design due to the fact that larger ampoules are used and the dose setting mechanism is extended by electronic displays which calls for a larger diameter of at least the proximal end of the pen. With such pen a compartment may be provided in the large diameter part of the syringe or in extensions of the pen, but such extensions will not surely make the pen more bulky. Consequently a new box shaped design as the one shown in figure 1 is preferred.

The syringe in figure 1 comprises a housing 1 carrying a scale 2 on which a dose may be set by rotating a finger grip 3 until an arrow 4 on this grip indicates the wanted dose on the scale 2. The dose may thereafter by pressing an injection button 6 be injected through a needle 5 which is carried in a needle hub 7 which is mounted on an needle receiving member on the syringe. A cap 8 covers a compartment in the housing .

Figure 2 shows the syringe of figure 1 with the cap 8 drawn off and a needle case 11 is sketched to show how such a needle case 11 which accommodates a needle as the needle 5

mounted in its needle hub 7 may be stored in the compartment. The cap is further so designed that its end surface 9 forms an abutment which may abut the skin during the injection.

Figure 3 shows a syringe corresponding to the one shown in figure 1 and 2. In this syringe the compartment is totally integral with the housing and is accessible through a lid 10.

In the drawings the equipment in the compartment is shown as a needle, but may other kinds of accessories may be stored in the compartment, e.g. electronic devices which could ordinarily be integrated in a durable syringe but which are too expensive to discard with a disposable syringe. Such electronic devices may be different types of timers or devices for electronic reading of set doses or the number of doses left in the ampoule. Also things which the patient may want to have a hand so as instructions, swaps, tablets, aids for mounting or dismounting of the needle, etc.

Claims

1. A syringe comprising a housing, a dose setting mechanism in the housing, an injection button, and a needle receiving member, by which syringe doses of a medicine can be set by the dose setting mechanism and by operating the injection button can be pressed out through a needle mounted on the needle receiving member from an ampoule accommodated in the housing characterised in that in that the housing comprises an accessible compartment .

2. A syringe according to claim 1, characterised in that has a size enabling it to accommodate at least one needle.

3. A syringe according to claim 1 or 2, characterised in that the compartment is a cavity in the housing covered by a lid.

4. A syringe according to claim 1 or 2, characterised in that the compartment is an inner space in a cap which is mounted on the housing.

5. A syringe according to claim 1 or 2, characterised in that the compartment is the inner space in a drawer which slides into the housing.

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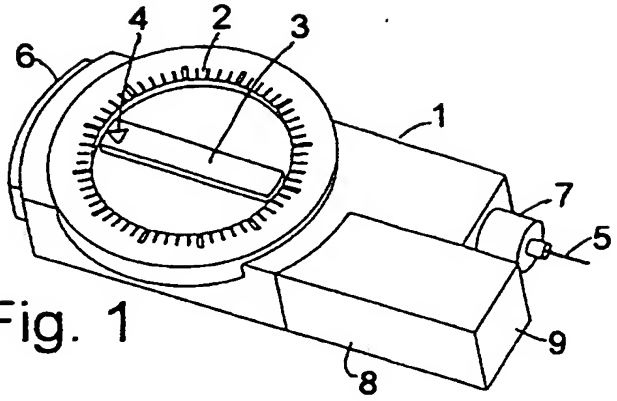

Fig. 1

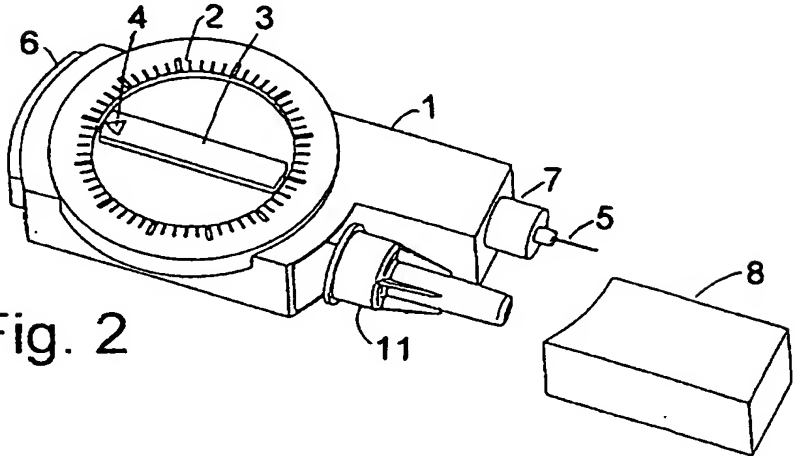

Fig. 2

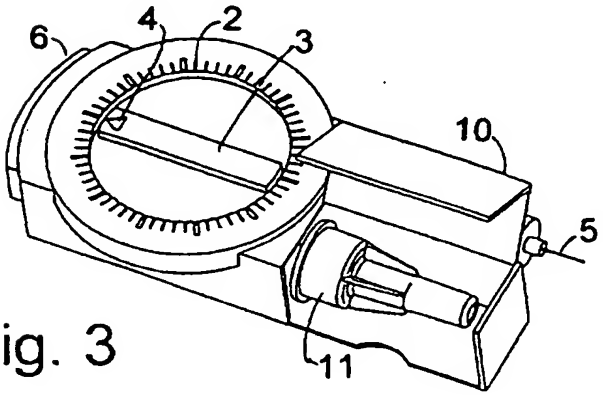

Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK 97/00379

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: A61M 5/24, A61M 5/31
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO:WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0697222 A2 (BECTON DICKINSON AND COMPANY), 21 February 1996 (21.02.96), figure 8, abstract -- --------	1-5

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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1 December 1997	30 -12- 1997
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0697222 A2	21/02/96	CA 2155284 A	17/02/96
		JP 8066475 A	12/03/96
		US 5545145 A	13/08/96